International Business Machines Corporation

1301 K Street, NW
Washington, DC 20005-3307
202/515-4000

August 2, 1996

BY HAND

Office of the Secretary
Federal Communications Commission
Room 222
1919 M St., N.W.
Washington, D.C. 20554

RE: In the Matter of Federal-State Joint Board on Universal Service, CC Docket 96-45

Dear Secretary:

Enclosed please find the original and four copies of the Comments of the International Business Machines Corporation submitted for filing in connection with the above-mentioned proceeding. Copies of the comments are also being served on all parties on the service list attached to the Commission's Request for Further Comment in this proceeding. A diskette containing the comments is being sent to the Office of the Secretary under separate cover.

Sincerely,

P. Bai Akridge
Program Director

Enclosure

cc: Parties on the Service List
International Transcription Service

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of	)	
	)	CC Docket No. 96-45
Federal-State Joint Board on Universal Service	)	

COMMENTS OF THE INTERNATIONAL BUSINESS MACHINES CORPORATION

Leslie D. Simon
Director of Public Affairs
Office of Governmental Programs
IBM Corporation
1301 K Street, NW
Suite 1200
Washington, D.C. 20005
(202) 515-5014

August 2, 1996

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IBM believes that the National Education Technology Funding Corporation (NETFC) established pursuant to Section 708 could be an excellent mechanism for enabling the effective use of advanced services in schools. In particular, the NETFC can play a critical role in creating incentives for schools and local and state education agencies to develop comprehensive plans for the effective use of advanced services

Question #9: How can universal service support for schools, libraries and health care providers be structured to promote competition?

When subsidies are required, they should be administered in a competitively neutral way. In particular, subsidies should not be conditioned on the education agency's procuring equipment from a preordained vendor. Instead, the funding mechanism should promote competition among vendors by giving education agencies the freedom to select among competitive offerings.

INTRODUCTION

IBM Corporation is an information technology, software and service provider doing business in more than 150 countries around the world. IBM believes strongly in the importance of a sound and healthy U.S. education system. As stated in the IBM Corporate Education Policy:

> No company can succeed if it's part of an unsuccessful community, and no community can be successful if it lacks an educated population. IBM's commitment to education is grounded in the belief that the quality of education is a preeminent concern of people everywhere and is an issue that deserves the full attention and cooperation of corporations worldwide. IBM's goal is to support the most effective education that will produce the highest level of student achievement for all children, in every community.

Experience to date demonstrates that technology, when coupled with appropriate training and curriculum, can be a powerful tool for improving the nation's schools and making sure that all of our students can meet high academic standards. As delineated in the Policy Statement adopted at the 1996 National Education Summit, new uses of technology in schools will:

* substantially improve access to the best instructional methods and materials for all students;
* give families greater access to teachers and schools to increase family involvement and improve student learning;
* provide students with the hands-on experience to develop the knowledge and skills they will need to compete successfully in the workplace;
* find and reinforce the best uses of technology that are already found in schools and classrooms and make them the norm;
* serve as a driving force for innovation and creativity in order to restructure every aspect of education, raise academic achievement, and increase the efficiency of school administration;

* offer teachers access to specialized support, collegial relationships, and professional development to increase their effectiveness with students; and

* provide new ways for students to work at their own pace, eliminating the ceiling for those who are already performing well academically, raising the floor and providing additional assistance to those who need it.

There is an increasing body of evidence that technology, when well utilized, will lead to improved student achievement. More important than improving current educational practices, technology provides an opportunity to achieve results that have not previously been possible; to find entirely new approaches to teaching and learning; to reach students who have been immune to current strategies; to teach new, higher order skills; and to reorganize schooling. The true power of technology in business has not been in automating existing procedures, but in the second wave of innovation that has allowed companies to reengineer their processes and undertake new approaches. By the same token, the impact of early technology in education, primarily limited to rote drill and practice in isolated computer labs, has not met expectations. The real successes are found in initiatives that use technology to reinvent education. A third wave of innovation, heavily dependent on telecommunications, is now underway as network computing comes to the fore and individual students, teachers, classrooms, and schools are linked with resources around the world.

IBM believes that careful educational planning and implementation, as well as access to competitively provided services and products, will promote the most effective use of technology in schools. These points are addressed under questions #8 and #9 in the Notice (DA 96-1078, July 3, 1996). Although the questions include libraries and health care providers, the comments submitted here primarily focus on schools

Question #8: To what extent should the provisions of Section 706 and 708 be considered by the Joint Board and be relied upon to provide advanced services to schools, libraries and health care providers?

IBM believes that the National Education Technology Funding Corporation (NETFC) established pursuant to Section 708 could be an excellent mechanism for enabling the effective use of advanced services in schools. While there is enormous potential for technology and telecommunications to support student achievement, this will not occur without careful planning and forethought. The NETFC can play a critical role not only in making advanced services available, but also in ensuring that schools and local and state education agencies have effective education and implementation plans for the use of these services.

Education agencies should be required to establish clear education and implementation plans before they receive assistance from the NETFC. What are the academic standards? What should students know and be able to do at the end of each grade? Input should be solicited from administrators, teachers, parents (and students) in formulating an effective plan. Such an education plan will help schools and school districts to determine how and where technology can be used to achieve these goals.

Where an education agency has no plan for the use of technology, few of the potential benefits can be realized. In the past, "technology plans," whether they are developed in response to Goals 2000, state planning grants, or local bond efforts, often have consisted of detailed lists of hardware that stand apart from any instructional, curricular, or educational planning. The results of such investments have all too often been disappointing. NETFC now can help reverse this pattern by requiring that funding recipients integrate technology planning

with the primary mission of the schools and school districts.

Once there is consensus on standards and the applications of technology that can support instruction, schools and school districts also will need to consider staff development. How will all members of the teaching staff be prepared to use the technology and maximize its impact? At least 15% and possibly as much as 30% of technology funding should be used for professional development. Thus, a sound technology plan must include provisions ensuring that the proposed technology will provide tools for teachers to learn new skills, network, identify resources, and gain professional development.

Facilities also must be prepared for new technology in advance of new purchases. These facilities should be planned with a view toward parent and community involvement. Technology also can be a tool to improve home/school/community communications and relationships, and schools can serve as community points of access.

Most important, schools must be prepared to consider how technology will interact with current practice and lead to changes in policies and procedures that served the old factory model of education well but are now obsolete. Technology and school reform are inextricably intertwined, with technology being a facilitator as well as a catalyst for change.

To achieve this change, the technology must be classroom-based, designed for easy integration into the basic academic curriculum, networked within the school, and connected to the rich resources and communication capabilities of the Internet, which can support classroom learning and home-school connections in important new ways. The hardware and

software configurations should be designed with a constant focus on improving student performance.

The NETFC should provide assistance only after a comprehensive technology plan -- meeting all the criteria described above -- has been prepared. The plan must include the academic standards, the instructional use of the technology, provisions for professional development, facilities, and parent and community involvement.

Finally, the NETFC should also evaluate the resources being committed by the education agencies that apply for support. It is time for schools and districts to move beyond dependence on categorical funding. If technology will be used to revitalize the math and science curriculum, then math and science budgets should become a core funding source. If the library is to become a media center with access to digital library resources, then library budgets should be tapped. And staff preparation need not be funded solely through isolated technology funds when a district already has a budget for professional development. Of course, there are costs related to technology that must be covered. But if a district is serious about reinventing education for the 21st century, it is time to prioritize educational needs, eliminate unnecessary expenditures, and reallocate funds to new activities.

Question #9: How can universal service support for schools, libraries and health care providers be structured to promote competition?

The core public policy goal in our fast-emerging information society should be to provide universal access to advanced services. Universal access means an opportunity for anyone to access the complex networked information infrastructure and to make use of the services they need or want at affordable prices. Promoting competitive markets in information technology and telecommunications products and services is the best way to achieve affordable prices for advanced services.

Competition encourages innovation and drives down prices. The most impressive example of what competition can do is the history of the computer industry itself. Since its beginnings in the 1950's, the computer industry has generated a constant flow of new products, each more powerful and cheaper than its predecessors. Not only do prices continue to decline, but the rate of decline continues to accelerate. Since the introduction of the IBM PC, the computing power of desktop and laptop machines has increased by at least a thousand times, and a fully-loaded system with processing power and sophisticated software functionality today is cheaper than any individual system just a few years ago.

Schools (as well as other community-based institutions such as libraries, health clinics, post offices, community centers and shopping centers) can and should play a key role in making advanced services accessible to the public -- students, faculty, administrators, parents and the community at-large. For example, schools could provide public Internet access. Schools and school districts should procure equipment and services from vendors providing the best products for the greatest value. As the market for schools using advanced services expands,

competition and innovation should drive down prices to even more affordable levels, creating an upward spiral of greater access for both institutions and individuals.

Where schools do require additional assistance in order to make advanced services publicly accessible, subsidies should be competitively neutral and limited. For example, an education agency that might receive assistance from the NETFC should receive support that enables that agency to select from among all vendors that choose to compete. Given the rapid advances in technology and telecommunications and the unique aspects of every school and community, the specific components of school technology should not be dictated by policy or funding. Any narrow prescription would only limit what schools can achieve. Also, assistance from the NETFC ought to be limited and designed to jump-start the initiatives of schools or districts with the greatest needs, not to take over local responsibility for funding education.

Respectfully submitted,

INTERNATIONAL BUSINESS MACHINES CORPORATION

Leslie D. Simon
Director of Public Affairs
Office of Governmental Programs
IBM Corporation
1301 K Street, NW
Suite 1200
Washington, D.C. 20005
(202) 515-5014

August 2, 1996

International Business Machines Corporation

1301 K Street, NW
Washington, DC 20005-3307
202/515-4000

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I have caused a true and correct copy of the foregoing Comments of the International Business Machines Corporation to be served this 2nd day of August, 1996, by first-class mail, postage pre-paid, upon all parties on the attached service list.

P. Bai Akridge

Service List

The Honorable Reed E. Hundt
Chairman
Federal Communications Commission
1919 M Street, N.W.
Room 814
Washington, D.C. 20554

The Honorable Rachelle B. Chong
Commissioner
Federal Communications Commission
1919 M Street, N.W.
Room 844
Washington, D.C. 20554

The Honorable Susan Ness
Commissioner
Federal Communications Commission
1919 M Street, N.W.
Room 832
Washington, D.C. 20554

The Honorable Julia Johnson
Commissioner
Florida Public Service Commission
Capital Circle Office Center
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

The Honorable Kenneth McClure
Vice Chairman
Missouri Public Service
Commission
301 W. High Street
Suite 530
Jefferson City, MO 65102

The Honorable Sharon L. Nelson
Chairman
Washington Utilities and
Transportation Commission
P.O. Box 47250
Olympia, WA 98504-7250

The Honorable Laska Schoenfelder
Commissioner
South Dakota Public Utilities
Commission
500 E. Capital Avenue
Pierre, SD 57501

Martha S. Hogerty
Public Counsel for the State
of Missouri
P.O. Box 7800
Harry S. Truman Bldg. Room 250
Jefferson City, MO 65102

Deborah Dupont
Federal Staff Chair
Federal Communications Commission
2000 L Street, N.W.
Suite 257
Washington, D.C. 20036

Paul E. Pederson
State Staff Chair
Missouri Public Service
Commission
P.O. Box 360
Truman State Office Building
Jefferson City, MO 65102

Eileen Benner
Idaho Public Utilities Commission
P.O. Box 83720
Boise, ID 83720-0074

Charles Bolle
South Dakota Public Utilities
Commission
State Capital
500 E. Capital Ave.
Pierre, SC 57501-5070

Lorraine Kenyon
Alaska Public Utilities
Commission
1010 West Sixth Ave.
Suite 400
Anchorage, AK 99501

Debra M. Kriete
Pennsylvania Public Utilities
Commission
P.O. Box 3265
Harrisburg PA 17105-3265

Mark Long
Florida Public Service
Commission
2540 Shumard Oak Blvd.
Gerald Gunter Building
Tallahassee, FL 32399-0850

Samuel Loudenslager
Arkansas Public Service
Commission
P.O. Box 400
Little Rock, AR 72203-0400

Sandra Makeeff
Iowa Utilities Board
Lucas State Office Building
Des Moines, IA 50319

Philip F. McClelland
Pennsylvania Office of Consumer Advocate
1425 Strawberry Square
Harrisburg, PA 17120

Michael A. McRae
D.C. Office of the People's Counsel
1133 15th St., N.W.
Suite 500
Washington, D.C. 20005

Terry Monroe
New York Public Service Commission
Three Empire Plaza
Albany, NY 12223

Mark Nadel
Federal Communications Commission
1919 M Street, N.W.
Room 542
Washington, D.C. 20554

Lee Palagyi
Washington Utilities and Transportation Commission
P.O. Box 47250
Olympia, WA 98504-7250

Jeanine Poltronieri
Federal Communications Commission
2000 L Street, N.W.
Suite 257
Washington, D.C. 20036

James Bradford Ramsey
National Association of Regulatory Utility Commissioners
1201 Constitution Ave., N.W.
Washington, D.C. 20423

Jonathan Reel
Federal Communications Commission
2000 L Street, N.W.
Suite 257
Washington, D.C. 20036

Brian Roberts
California Public Service Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

Gary Seigel
Federal Communications Commission
2000 L Street, N.W.
Suite 812
Washington, D.C. 20036

Pamela Szymczak
Federal Communications Commission
2000 L Street, N.W.
Suite 257
Washington, D.C. 20036

Whiting Thayer
Federal Communications Commission
2000 L Street, N.W.
Suite 812
Washington, D.C. 20036

Alex Belinfante
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Larry Povich
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554